# Global Warming: Can we adapt to a changing world?

By Judy Fahys
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HOVENWEEP NATIONAL MONUMENT - The stone towers of Hovenweep stand eerily quiet now under a sweltering July sun.

In the 14th century, Puebloans filled the area now included into Hovenweep National Monument in southern Utah with life. But the land became drier and hotter, forcing them to leave the region. The ruins show today's Utahns how climate can change their lives. (Jim Urquhart/The Salt Lake Tribune)

More than seven centuries ago, ancient Puebloans, or Anasazi, filled this place with life. They hunted small game, wove baskets, painted clay pots. They raised generations of children. They built artful stone and mud structures as sturdy as Europe's medieval cathedrals. They grew enough corn, squash and beans to feed hundreds. And when drought challenged them, as it often did, they perfected technology and techniques that allowed their society to survive for about 700 years on the arid southeastern edge of Utah.

But in the 14th century, the land became drier and hotter, and planting cycles went awry. Those early residents of what would become Utah could adapt no more. So, they joined an exodus of Four Corners inhabitants.

Seven hundred years later, the ruins of their civilization show today's Utahns how changes in climate can change people.

They teach us "that we always have dealt with climate change," says archaeologist Mark Varien.

"If the climate is changing, society has got to deal with it."

Divided opinion: It's not surprising that Utahns, like other Americans, do not agree on what to do about global warming. The discord starts at the top.

Many elected leaders openly doubt the science, and they echo an industry-backed message campaign to make climate change seem uncertain, too squishy to act upon.

The Bush administration has refused to join the international Kyoto Treaty to

control greenhouse gasses, insisting it will stymie the U.S. economy while giving competing nations an edge.

In Blanding, Mimi Toomey, a lifelong Utahn who tends the counter at a Honda dealership, remembers her teachers in the '60s telling her about the ice age that was about to come. Now her children are learning about global warming. Toomey is not troubled by how the nation's leaders have handled the issue because she sees the changes as part of a natural cycle.

"I really don't think they have control over it," she says.

Uncertainty is unavoidable in the massive climate change projections that scientists have developed. Still, climate scientists agree that the Earth is warming unusually fast and may reshape the natural and human landscape.

Hurricanes may pound harder on the coasts, and there may be more of them. The heat may melt away the polar ice, and rising oceans may swallow the largest cities. Beetles may fell whole forests.

In Utah, temperatures are already rising. Utahns could suffer more droughts, more wildfires, more flooding and more record-breaking heat like last month's.

Julie Mayers, of Blanding, is concerned. Standing behind the counter of a soon-to-be-shuttered trading post a little way up the highway from Toomey, Mayers is angry with the nation's leaders.

"I think they are greedy and they don't care what's good for the people or the planet or their own grandchildren," she says. "They're selling us out."

Some step up: Still, even while the debate continues in some quarters, a curious thing is happening: Some leaders have begun to react to climate change.

In Utah, state environmental officials are exploring the idea of joining a regional inventory of greenhouse gasses. It is considered a first step to determine how to cut the pollution linked to global warming.

And, while The Church of Jesus Christ of Latter-day Saints has not joined the movement of evangelical Christians that has called climate change a moral issue of our time, it has nonetheless taken steps to reduce its own energy consumption and the greenhouse gas emissions associated with that energy use, including a heat transfer system that is used to cool and heat its world headquarters in downtown Salt Lake City.

"Wise use of resources and prudent stewardship are principles that church leaders have emphasized throughout the history of the church," says LDS spokesman Dale Bills.

Closer to home, Salt Lake City Mayor Rocky Anderson has led municipal government to cut the levels of its greenhouse gas emissions by 21 percent, a goal that originally was set for 2012.

A driving force in a worldwide movement of mayors combating climate change, Anderson says Americans need to make radical changes and, more important, to demand accountability from their national leaders.

He says: "There needs to be a personal and community ethic shift around this."

One adaptation: About 15 miles from Hovenweep's Little Ruin Canyon as the raven flies, a team of researchers takes measurements on the Navajo Nation reservation's Aneth oil field. They will suffer through summer heat in the desert for at least two days to set up tests that will help them learn whether carbon dioxide can be stowed deep underground in old oil and gas wells and salty formations below the wells.

The idea is to capture carbon gas, which scientists blame for speeding up the planet's natural warming, at the power plants where it is produced and pump it back into the ground. It's the climate-change equivalent of trying to put the genie back in the bottle.

If the test project, funded largely by a $19.3 million U.S. Energy Department grant, proves successful, a full-scale operation could capture all of the carbon dioxide pumped into the atmosphere by power plants throughout the Southwest for more than three decades.

"Sometimes I think one person can't do a whole lot," says Jason Heath, a New Mexico graduate student who is working on the project, "but a whole lot of people together can make a difference."

Decisions ahead: So will solutions to climate change be based on technology, like the Aneth project? Would shutting down all of the nation's coal plants today or forcing them to use newer, cleaner technology reverse current climate trends? Or will it include individuals driving less and recycling more?

Those are questions that science alone is not equipped to answer. Ordinary people will have to cope individually and through their governments - through the politics of collective decision-making.

And the answers probably won't come easy.

* On the global scale, for instance, there is the question of who should bear the costs of addressing climate change. The United States and Europe are the largest producers of greenhouse gases and likely have the economic might to do

something about it. But what about India and China, whose embrace of market economies means an improvement in the living standards
of many of their citizens but also growing greenhouse gas emissions?

* In the United States, reductions in greenhouse gases could mean higher fuel standards, raising gasoline taxes, cleaning up dirty coal-fired plants, taxes on carbon emissions, and other measures that up until now have not found favor in Washington.

* In Utah, if precipitation falls more as rain than snow, we face decisions such as whether to build new dams to capture the runoff and how to adjust our economy to a shorter winter recreation season.

* In our communities, leaders might have to tax us more to increase public transit, while spending less on roads that carry gas-guzzling vehicles, signaling a sharp shift in business-as-usual.

* At home, we might have to turn off our air conditioners, lower our thermostats in the winter, while investing in energy efficiency throughout our lives. That might mean more walking, more time on public transport, a hotter house in the summer and a colder one in the winter.

Still, some people believe it may already be too late.

"Environmentally, I'm not sure we have that much time," says Springdale resident Lila Moss. "People don't seem to be waking up to what we have to do here."

Adapt or not: Mark Varien, the Four Corners archaeologist, marvels at the many tools and techniques the ancient Puebloans at Hovenweep perfected over seven centuries to make such an arid patch of the world inhabitable. Water-conserving mulch, careful planting times, ingenious irrigation - ultimately they were not enough and the Hovenweep inhabitants had to abandon their homes.

Varien wonders why modern mankind has not done a better job of reading the environment and adapting to the changes that, thanks to our sophisticated measuring tools, are so obvious.

In societies worldwide, environmental changes have the potential to spur increasing conflict, including war.

"That's a really important lesson to learn," Varien adds: "that unless you anticipate and plan for these changes, they can result in really bad consequences for human beings."

Hovenweep translated from Ute-Paiute language means "Deserted Valley," a suitable description for such a quiet place on a hot summer day. The voices of

the canyon's ancient inhabitants have been gone for many centuries. The lifeless towers stand as a monument to their achievements, yet also as headstones for a civilization lost to dramatic change to which they could not adapt.

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